RESEARCH PROGRAM ON Integrated Systems for the Humid Tropics

CGIAR

Humidtropics
Gender Strategy

The Gender Strategy provides an overview of the approaches that will be used by Humidtropics to achieve its Intermediate Development Outcome 5 (IDO 5), which aims to empower women to have better control over and benefit from integrated production systems. Humidtropics will undertake research in three thematic areas across its three Strategic Research Themes (SRTs) and within its five Flagship Projects. Humidtropics will mainstream gender into all its activities and work with Partners across regions to achieve improved incomes, nutritional outcomes and productivity and yields for both male and female farmers. The Gender Strategy is an integral part of the Humidtropics Research Program. Its goal is to narrow the inequities between men and women in access to the productive resources that are central to rural livelihoods.

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Preface to Humidtropics Gender Strategy

Humidtropics – the CGIAR Research Program on Integrated Systems for the humid tropics, aims at improving overall agricultural productivity, and transforming the lives of rural poor in the humid tropics, through integrated systems research for development. Humidtropics is presented as a key to help unlock the rich potential inherent in the humid tropics region, involving key partners and stakeholders, and directed at enhancing productivity and livelihoods, and lifting poor rural communities out of poverty. The program is aimed at Action Areas in three major impact zones of sub-Saharan Africa, tropical America and Asia.

The logic underlying any effort to bring about positive change in the current situation is that one cannot expect to achieve different outcomes if we continue to do things the same way as we have done in the past. There is therefore an acute need for change in the way we address agriculture through research and development. Our rich resources, both in terms of people and the diversity of ecosystems need to be much better understood and much better managed for achieving sustainable improvements in productivity. Our human resource needs to be seen as our most-treasured resource, and consists of a diversity of people – men, women and youth – and includes marginalized groupings within these Action Areas. Humidtropics' Gender Strategy is designed to address the interests of all these diverse groups, and also to ensure their effective participation and benefit sharing in Research for Development (R4D).

The need for strengthening gender staffing and expertise within Humidtropics in order to undertake the gender dimensions in our research is based on our perspective that without involving women optimally and dealing with 'gender issues', our central goal of improving livelihoods of the rural poor and smallholders is not going to be achieved. To ignore this dimension would automatically reveal inadequacies in our systems research and strategic thinking. Furthermore, connecting our research to the needs and perspectives of women is a scaling strategy in itself – it has a multiplier effect on outputs and outcomes. Essentially, it can be reasoned that what is good for women ends up benefitting children and ultimately, society at large; so designing R4D to benefit women specifically will benefit society generally.

Humidtropics' Gender Strategy aims at integrating gender into our research planning processes, priority setting and targeting, and into the impact pathways for each of the IDOs of Humidtropics. First, gender is identified as one of six IDOs – an 'enabling' IDO – that we intend to deliver. This means that we are challenged to develop indicators and metrics on how we are going to monitor these change processes and what data we will be producing. Secondly, we have taken the decision that each of our four area-based Flagship Projects must have a clear gender focus in the development and implementation of the research agenda. Our Gender Strategy also aims at addressing the generally low numbers of senior gender research specialists in Humidtropics. Finally, the Gender Strategy guides allocation of specific budgets to support gender mainstreaming in all our area-based Flagship Projects, and for strategic research and gender staffing. Collaboration with other CRPs and other non-CG partners in this gender research and cost sharing will also be explored.

The management and leadership of Humidtropics therefore commit to support the realization of this Gender Strategy. This will involve working towards significant mindset changes within ourselves as individuals, and within our institutions, as well as building our gender capacity at all levels within the implementation of the R4D pathway of Humidtropics. The Gender Strategy is an essential guide for positioning Humidtropics towards realizing the impacts we desire to produce, and it will be given full support and emphasis in our research and management operations.

Kwesi Atta-Krah
Director

1. Introduction

The humid and sub-humid tropics, with 2.9 billion people occupying about 3 billion hectares of land, are critical to global food supplies, central to the maintenance of global biodiversity, and vital to the mitigation of greenhouse gasses. Intensification of agricultural systems in these areas offers the best potential for poverty reduction, meeting world food demand, and for closing the inequity gaps between men and women small-scale farmers. Furthermore, the bulk of the rural poor reside in the humid and sub-humid tropics, these areas are also associated with inadequate household nutrition, soil fertility depletion and vulnerability to climate change.

Humidtropics' Gender Strategy addresses the failure of agricultural research to take into account the complexity, diversity and challenge of small-scale family farming, and its gendered nature. It acknowledges the historical neglect of women's work and the contributions women have always made to cooperative (family) needs, and the importance of the separate economic activities of women and men for meeting their individual obligations and interests. It also acknowledges the various and often different ways in which male and female household members, both young and old, engage in farming. Humidtropics' Program goal is to improve the livelihood sustainability of poor farm families by increasing incomes, improving nutrition, and gender equity within households and linked institutions. Gender action and considerations will be mainstreamed into all program activities, which includes adopting the practice of collecting sex-disaggregated data, undertaking gender analyses of these data and, operationalising a principle of social inclusion within which women and men are equally represented. The gender strategy, which also includes undertaking specific gender research aiming at transformative outcomes, is an integral part of the Humidtropics Research Program.

In the first instance Humidtropics' gender research is focussed primarily on increasing opportunities for women. This is a deliberate choice aimed at addressing and ameliorating gender-based disadvantages that affect women. However, this primary focus does not negate Humidtropics' overall aim of ensuring that the program will benefit all rural residents, women and men, farmers and non-farmers, youth and marginalized groups. Innovations systems approaches will ensure that the interests of all are taken into account to the greatest extent possible.

2. Justification and Rationale

Women and men work in agriculture, either separately or jointly in smallholder, largely family farms or production units involved in crop, livestock and fisheries production in different parts of the world. As detailed in the 2009 Women's Role in Agriculture Sourcebook (World Bank, FAO, IFAD) for all natural resource sectors in all regions, the domestic and other work undertaken by women largely has been ignored or taken for granted in development planning, agricultural research and communication activities. Rural societies today are undergoing rapid transformations as a result of factors such as outmigration, increased emphasis on children's education, shifts in government policies, especially reductions in social and economic subsidies, increasing pressures on natural resources as a result of climate change, and competition from globalised markets. In addition, there is growing international concern about widening inequalities in society, with women in particular being presented as continuously overworked, with inadequate resources to enable them to fulfil their obligations and needs, or to access opportunities. It is clear those rural households as a whole and their individual members need to increase their production and productivity to build and maintain diverse income-earning activities in order to be able to adapt to change and improve their well-being. According to FAO, only five per cent of current agricultural extension efforts and resources are directed towards women, and women invariably earn far lower wages than men for equivalent work. If men and women had the same access to

productive resources, women could boost their crop yields by 20 to 30 per cent. This gain in production could increase women's income and reduce the number of hungry people in the world by 12 to 17 per cent (FAO 2011). Some studies have shown that when women control gains in income, they are more likely to spend on food and children's needs (e.g. Kennedy and Peters 1992). By investing more in women, benefits are amplified across families and generations. There is consistent and compelling evidence that when the status of women is improved, agricultural productivity increases, poverty is reduced and nutrition improves. Reducing gender inequality and recognizing the contribution of women to agricultural productivity are therefore critical to achieving global food security. As mentioned in the Preface, the following points underline Humidtropics' position on the crucial necessity for gender-based research:

- One cannot put R4D into practice if the gender dimension is disregarded – it would show inadequacy in systems research and strategic thinking;
- Connecting to needs and perspectives of women is a scaling strategy in itself – it has a multiplier effect on outputs and outcomes;
- Essentially, what is good for women will be good for children and for society in general – so designing R4D in order to benefit women specifically will benefit society in general (there is research done, e.g. by IFPRI, which backs this up).

2.1 Differentiated Roles of Men and Women in Agriculture

In the humid and semi-humid tropics, men and women are involved in farming systems that include multiple components (crop, livestock, tree-crop and fisheries), which feature symbiosis as well as competition. The roles, responsibilities, opportunities and challenges of men and women differ according to region, crop, and livestock system (Peterman et al. 2011). Women in particular have diverse roles in crop and livestock production. They are critical in cultivating and marketing crops, and managing mixed enterprises while at the same time attending to family and social obligations (Ashby et al. 2002). Paris (n.d.) reports that in the Philippines women producers of root crops were considered to be secondary farmers. In Nigeria, Awoyemi and Adeoti (2006) found that female cassava producers were less efficient than male producers but also were less likely to have access to resources to purchase inputs to improve their efficiency. On the other hand, in relation to gari processing, Taiwo et al (2001) found that women were less likely to be employed in gari processing centres, and were reluctant to learn how to operate diesel-powered processing equipment. In Mozambique, Arndt and Tarp (2000) found that agricultural technology improvements benefitted both male and female farmers and were particularly compelling when combined with marketing system improvements.

Female farmers in many, if not most, regions have less access to agricultural inputs than men. Chen (2011) using ICRISAT data for India found that use of fertilizers and irrigation was positively correlated with the number of boys present in a household. Hart and Aliber (2010) found that in South Africa, despite the large presence of women farmers, state policies and programmes were focused on high-input agricultural technologies and infrastructure provision, geared towards large-scale famers, most of whom are male. Additionally, the spill over technologies from the commercial sector that were promoted by the government required a level of education beyond that of most women farmers. Kerr, working in Malawi, evaluated the impact of the efforts of the Alliance for a Green Revolution in Africa (AGRA) to promote fertilizer, hybrid seeds, pesticides and biotechnology to increase agricultural production, and found that the poorest households tended to be bypassed and that ultimately these technologies will intensify inequalities, increase environmental degradation and exacerbate malnutrition for the rural majority. Mikalitsa (2010) found that in Kenya neither men nor women had much access to extension services, but that women also lacked access to land, credit and income, and had low education levels. There are also important differences in livestock ownership.

In livestock production systems, women have important roles in managing dairy cattle, poultry and small ruminants, including responsibility for feeding, watering and milking animals reared close to home. They are involved in intensive and mixed systems, and in processing and marketing of livestock products. Although they contribute to improved household income and nutrition, they are relatively poor compared with men. The role of women in small-scale livestock production especially for subsistence is well documented. According to FAO (Köhler-Rollefson 2012), women's livestock usually consists of poultry, small ruminants and goats, which are kept near the homestead. Much less is known about women's engagement in commercial livestock chains especially beyond the household. The demand for livestock products is increasing and expected to continue to increase. Mixed and even pastoral systems will need to respond to these changes in demand and become more commercially oriented if smallholders are to benefit. This has implications for the engagement of women and the benefits they get from these livestock value chains mainly because new roles, responsibilities and resources will be required for different scales of production and different points of the value chains from farm to beyond the farm. If gender considerations are not included in livestock marketing projects and livestock production scales up, the control over decisions and income, and sometimes the entire enterprise, may often shift to men while women continue to provide labour.

An estimated two-thirds of poor livestock keepers are women (Thornton et al. 2002). Many face particular challenges in accessing crop and livestock information, extension, advisory services and education (Saito and Weidemann 1990), and in owning or acquiring land, assets and technology (Ezumah and Domenico 1995, Lilja and Ashby 2001). On the other hand, women often pool resources or knowledge and work in groups, both in producer organizations and in marketing collectives (Fischer and Qaim 2012, Gonzalez Manchón and Macleod 2010). Some studies have found that women are less likely to join formal farmers' organizations but they have informal social networks that are of critical importance for sharing information and knowledge (Quisumbung 2010). Beyond the farm, women are more often engaged in slaughtering, processing and retailing of livestock and livestock products but often in mainly low or semi-skilled positions. There are, however, tremendous opportunities in value chains for both men and women[1].

2.2 Mere Participation of Women not Enough

Experience has shown that it is not enough simply to seek women's participation in agricultural development interventions. Participation in meetings and training alone does not guarantee positive results, as in some cases women become even more burdened as they take on new and additional roles. In an overview of recent agriculture interventions focused on women's access to productive resources, Quisumbung (2010) found that relatively few interventions focus specifically on women's productive resources and most have never been evaluated. Lack of evaluation has made it difficult to know which programs can be scaled up. She also emphasized the need for planners to consider the tradeoffs entailed in challenging or respecting local gender norms. Meinzen-Dick et al (2011) present a comprehensive overview of the disadvantages accrued by female farmers and producers, worldwide, and the measures that should be taken by agricultural researchers and policymakers to ensure that women are able to increase their production capacity and to move towards gender equity.

Within this context, the overall objective of Humidtropics' Gender Strategy is to contribute to the empowerment of women and men, enabling them to undertake agricultural production and natural resource management at an optimal level. Empowerment, in the context of

[1] CRP 3.7's "Synthesis of Research Outputs for CG network" highlights key outputs to be achieved in selected livestock value chains around these issues.

Humidtropics, is defined as “the ability to act independently with the necessary means to make one’s own decisions”. The achievement of empowerment is a dynamic process with four key dimensions: (1) access to material assets; (2) access to knowledge and know-how; (3) improved capacity, including the ability to make decisions; and (4) the ability and self-confidence to make choices (see Deere, Carmen Diana and Magdalena Leon 2001, Kabeer, N. 2003, Deere, C.D. & C. R. Doss 2006, The Women Empowerment Approach: A Methodological Guide, 2007, Brussels). Of course real empowerment is a long-term and transformative process, but Humidtropics will contribute to the empowerment of women by delivering improved technologies and contributing to the development of improved extension services, financial services, marketing opportunities, etc.

Humidtropics’ Gender Research Strategy begins with undertaking diagnoses of current constraints faced by the poor in general, and specifically poor women. Diagnostic research and situational analysis will be carried out in the different geographical locations covered by the Program. These regions are changing rapidly in face of outmigration, climate change and global competition, which have brought about transformations in the traditional roles and responsibilities undertaken by women and men. Diagnostic research will identify important knowledge gaps and specific target groups for gender-responsive research to be undertaken during the lifetime of the Humidtropics CRP.

2.3 Knowledge Gaps

A number of knowledge gaps need to be filled to effectively design and plan Humidtropics interventions. Information will be collected to describe/hypothesize the causes of existing gender inequities and inequalities, and to formulate focused research to reduce or eliminate the disparities. In the humid and sub-humid tropical areas of sub-Saharan Africa, this research would focus on reducing the drudgery of women’s activities in farming, livestock grazing and management, reducing disadvantages in food allocation within households, improving women’s nutritional status, addressing the lack of appropriate extension, credit and business development services and appropriate technologies. Baseline surveys will be used to identify the most appropriate groups with which to work, and these will be reviewed regularly through the continuous M&E activities.

New technologies can play a significant role in improving productivity, food availability and achieving the quality and quantity standards that enable access to new and more profitable markets. However, there is a tendency to design and disseminate new technologies and conservation techniques without the voice and pro-active participation of women. The resulting technologies may not be effective in filling particular priority gaps experienced by women, and may not suit their needs and interests. Research is needed on two fronts to redress this situation. First, to understand why and how women are excluded from these design and development processes. Second, to understand the costs and benefits of gender-responsive technology development and distribution within Action Areas. Such information would be used to convince developers and distributors that it is in their own interest to adopt gender-responsive approaches as pathway to impact at scale.

A less understood aspect that may affect poor women’s relative benefits from new technologies relates to the risks associated with their adoption. These may come from the technologies themselves, or from the consequences of their adoption, including those associated with increased commercial levels of production. Research has documented how risk aversion may lead poor farmers to avoid investment in improved inputs and new technologies. Because risk aversion plays such a critical role in the willingness and ability of small-scale farmers to take advantage of improved opportunities, including new technologies, it is important that research generates a better understanding of how gender differentiated risk and uncertainty influence women and men’s respective ability to invest in natural resource improvement and biodiversity management. The research output would

provide evidence-based recommendations to development practitioners, suggesting the types of technologies/interventions requiring the accompaniment of gender-based measures to assure a fair share of benefits flow to women as well as to men.

In addition to risk aversion, women face challenges to ownership and use rights over resources such as land, water, livestock, grazing and fisheries. Their challenges may include the capacity to capture beneficial environmental services in labour-use and the returns to their labour, and in political capital; as well as access to training, information, agricultural advisory services, credit and other financial services (see Deere, C.D. & C. R. Doss 2006). These adversely impact their ability to benefit fully from technological and value chain improvements. Research alone is incapable of solving such access and empowerment issues; however outputs will identify both context specific and more generalizable aspects of these constraints, and provide a basis for the selection and testing of appropriate measures to address the specific issues in different intervention contexts.

2.4 Targeting

Humidtropics will ensure that women benefit directly from its interventions, both in their own separate production activities, as well as from those activities jointly undertaken with men. This will serve to reduce the disparity in benefits from the increased yields and factor productivities of staple food crops, livestock and livestock products, and subsequently lead to a reduction in differences in income and asset control between men and women.

There is presently insufficient information to clearly identify the target groups for which specific gender-related activities and outcomes can be defined in Humidtropics' four Action Areas. Among the criteria used for selection will be the present level of drudgery in women's work, women's nutritional status and the lack of appropriate extension, credit and business development services and appropriate technologies. As noted under Knowledge Gaps, baseline surveys will be used to identify the most appropriate groups with which to work, and these will be reviewed regularly and updated through continuous M&E activities.

3. Humidtropics' Gender Research Approach

Humidtropics' Gender Strategy encompasses two parallel approaches:

First, gender is considered to be a cross-cutting thematic area that will be integrated into all of its research and development and decision making structures. This will be done through purposeful gender mainstreaming into on-going projects and decision-making structures, and through strategic gender research within area-based Flagship Projects. In practice, this will involve considering the gender dimension in the design of research treatments; collecting sex-disaggregated data; undertaking gender analyses of these data and operationalizing a principle of social inclusion within which women and men are equitably represented.

Secondly, Humidtropics will undertake strategic research initiatives focussed on key gender challenges and opportunities, with cross-cutting potential across all the Action Areas and Flagships. Some of this research will identify and evaluate new technologies and test their relevance and accessibility for women farmers. Other work will be aimed at transformative outcomes.

Humidtropics' gender work will be done within the context of its five Flagship Projects and its three SRTs which are discussed below.

4. Humidtropics Flagship Projects

In the first phase of Humidtropics, research will be done within five Flagship Projects. Four

are area-based and relate directly to the four Action Areas, while the fifth is designed for strategic, cross-cutting research and capacity development. The mainstreaming of gender research described above will be done in the context of the Action Area Flagship Projects. Most of Humidtropics' strategic gender research will be situated within the cross-cutting Flagship.

- **The East and Central Africa Highlands** Flagship Project has locations in the humid and sub-humid tropics of Western Kenya, Southern Uganda, the Ethiopian Highlands, Eastern Congo, Burundi and Rwanda. Women farmers carry a considerable burden of farm and household responsibilities with limited access to agricultural resources and assets for fulfilling these responsibilities.

- **The West Africa Humid Lowlands** Flagship Project has locations in the humid and sub-humid tropics of Cameroon, Nigeria, Ghana and Cote D'Ivoire. Livestock densities are low but small animal enterprises are regarded as particularly important to the poor and women although throughout women are involved in food production, processing and trade.

- **The Central America and Caribbean** Flagship Project includes three main sites in the humid and sub-humid tropics of Nicaragua, Honduras, Guatemala, El Salvador, Haiti and the Dominican Republic. Agriculture is important as a source of both direct and indirect employment, and is the core of export income. Land holding is highly unequal, with asset-constrained family farmers working on less favourable land.

- **The Central Mekong** Flagship Project in Southeast Asia is situated within the larger geopolitical boundary of the Greater Mekong sub-region, which includes Cambodia, Lao PDR, Myanmar, Thailand and Vietnam, plus the two Southwest provinces of China. Economic development has resulted in large shifts in consumption and expenditure patterns, and these changes are set to continue as the project is situated between the two emerging economies of China and India. These conditions present exceptional opportunities for growth that could result in benefits for all.

- **The Cross-Cutting Strategic** Flagship Project derives from key research domains requiring study and analysis across locations and includes aspects of innovation, capacity development and gender. In addition, foresight analysis on how global drivers of change, e.g. climate change, urbanization, population growth, etc., are conducted within this Project. This cross-cutting Flagship Project also enables strategic cross-cutting studies on gender, such as analysis of gender transformative research (in partnership with other CRPs), and processes leading to better understanding of gender differences in shared knowledge systems, in risk management strategies and in gender differentiation in the benefits from agricultural research.

5. Strategic Research Themes (SRTs)

Work done in the Flagship Projects will be guided by Humidtropics' three SRTs:

5.1 SRT 1: Systems Analysis and Synthesis

SRT 1 will generate an initial analytical framework covering institutions, stakeholders, and rural communities and households, for identifying alternative trajectories, bottlenecks, and opportunities to address the IDOs defined by Humidtropics. The starting point will be to undertake situation analysis and characterization of households in the Action Areas. This will lead to identification of opportunities and constraints, on which research can be focused. This will provide the basis for identifying specific needs and relating these to household

typologies, and for prioritizing technological and other interventions (specific entry points and actions under SRT 2), and for assembling the R4D innovation network.

Initially, a common set of analytical tools will be employed or developed for application across the program. They will be gender-sensitive and will be used to characterize markets, system productivity, household structure and resource endowments, Natural Resources Management (NRM) integrity, indigenous and/or local knowledge, participatory methods, agro-biodiversity assessment and system integration.

5.2 SRT 2: Integrated Systems Improvement

SRT 2 comprises the integrative field and socio-economic research aspects of the program. It builds upon the knowledge gained of situations, opportunities and constraints in the diagnosis and characterization activities of SRT 1. It is built around an "R4D triangle" where stepwise improvement in rural markets and institutions (SRT 2.1) and agricultural productivity (SRT 2.2) are closely integrated with natural resource and biodiversity management (SRT 2.3). Improved rural nutrition will be achieved via improved diets at the household level, often involving cottage industries.

In the three sub-sections of SRT 2, gender responsive adaptive research will be undertaken, based upon the knowledge developed through the work of SRT 1. Therefore the technologies and market strategies that are designed will be directly relevant to the needs and conditions of the various gender and user groups. As technologies are selected or developed, they will be evaluated to ensure that they address gender issues identified such as divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members.

Gender-responsive and inclusive decision support tools for identification of productivity enhancing component technologies (SRT 2.2) such as Participatory Technology Evaluation, Gendered Value Chain Analysis, etc., will be employed. Sex-disaggregated data collected through both participatory analyses and formal household surveys will be used to improve the development of typologies that reflect household structures, intra-household gender relations and norms, and how these function in the broader institutional context such as in markets, and to assess the progress of productivity enhancement related impact goals across the Action Sites and Action Areas. Social indicators will be an integral part of mapping farm typologies, system productivity and resilience.

5.3 SRT 3: Scaling and Institutional Innovations

This theme advances the development outcomes within Action Areas and the entire Humidtropics Program by conducting research on scaling and institutional innovation. It expands institutional capacities and effectiveness; undertakes adaptation and optimization of technology transfer pathways; and develops supportive infrastructure and policies necessary for gains developed within specific Action Sites to become realized within the larger Action Areas. SRT 3 addresses the constraints of engendering the R4D platforms, i.e. creating an open, reflective space within which innovations thrive.

Research in SRT 3 will examine scaling up of successful gender-responsive strategies that enable equal access to opportunities such that technologies and other innovations can impact on rural poverty and gender equity in a manner that raises the effectiveness of Program Partners. The information generated in the diagnostic and characterization studies, and the on-going M&E process will be compared with participatory and formal quantitative studies undertaken at this stage to determine gender-differentiated impacts of the key interventions.

6. Gender-Responsive Goals and Objectives

The overall goal of Humidtropics' Gender Strategy is to contribute towards empowering poor women and men to have better control over and benefit from integrated production systems, and ultimately to transform women's status and position. This will lead to realization of effective research and impact pathway delivery and to the achievement of IDO 5 on gender empowerment.

Humidtropics' gender work will be fully integrated into the three SRTs. Some research will take an experimental design approach and be carried out across Action Sites and Action Areas in order to ensure validity and the possibility of replicating results. Overall, the gender work has three primary objectives:

- **Objective 1**: to diagnose and characterize the most important constraints that hold back women from achieving full potential productivity and income generation, including the types of gender relations, and household and related kinship structures that influence these outcomes positively or negatively;

Humidtropics Gender Research Definitions

Gender-responsive: both men and women will benefit and neither will be harmed. There is no assumption that gender inequities will change as a result of gender-responsive research undertaken by the CRP.

Gender-transformative: seeks to change gender relations and especially gender inequity. Gender-transformative research is longer-term and includes changes that go beyond the outcomes of agricultural research. Over time, gender-responsive research can produce sufficient evidence to lead to gender transformation.

- **Objective 2**: to develop, test and evaluate approaches for increasing women's participation in research and benefits from research in Humidtropics Action Sites and to ensure that both existing and new technologies under development address gender issues such as divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members;

- **Objective 3**: to identify and analyze opportunities for technological, institutional and market innovations that improve equity in women's representation at various levels of decision-making, as well as in benefit sharing.

6.1 Potential Research Questions

Detailed research questions will be formulated in response to problems and issues that are identified in the diagnostic and situational analyses. Examples of the types of questions that will be asked in the context of the three SRTs include:

SRT 1

1.1 Are traditional gender relations changing in response to macro-factors such as outmigration, climate change, global competition, etc.?

1.2 How do/can gender relations contribute to sustainable natural resource management?

1.3 Does more sustainable natural resource management contribute to 'good' gender outcomes?

SRT 2

1.1 Do gender relations change in various phases of system intensification?

1.2 What are the gender implications of different technologies? What is the likely gender impact?

1.3 What kinds of factors must be taken into account to ensure that technologies are relevant to and taken up by women?

1.4 What conditions lead to the shifting of tasks between/among household members?

SRT 3

3.1 What are the market opportunities for men and women in specific Action Sites? Who has access to different types of market opportunities?

3.2 What types of technological innovations can help to improve equity in women's representation in decision-making and benefit sharing?

3.3 What types of institutions must be put in place to ensure that women participate in decision-making and share in benefits?

7. Integration of Gender Across the Research Cycle

As part of the mainstreaming process, gender research will be integrated across the research cycle from priority setting and targeting, through planning, testing of innovations, monitoring and evaluation of their outcomes. Research activities under each of the Flagship Projects will be required to indicate the gender dimension in the research and to specify the outputs required relating to gender and the proportion of the budget that will support the gender work.

The diagnoses and characterizations carried out in SRT 1 will help to identify specific needs, contexts and potential intervention areas. Key gender constraints and opportunities in the crop, livestock and other system interventions will be identified, as well as the gender division of household decision-making and responsibilities, access to ownership/control over productive resources, and constraints faced in accessing improved technologies, services, inputs and markets. Men's and women's preferences for technologies, inputs and services will be identified along with opportunities for reducing gender inequities and insensitivities to equal participation and benefit sharing. These comprehensive analyses will permit the definition of priorities.

Gender analysis in the product discovery and development stages (SRT 2) will incorporate participatory and formal testing, and evaluation of selected options in terms of expressed benefits to and preferences of defined target groups. As technologies are selected or developed, they will be evaluated to ensure that they address critical gender issues such as divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members.

Gender dimensions will also be built into Humidtropics' M&E system. This will support operational and performance monitoring as an input to program management and accountability.

Humidtropics will strive to achieve gender equity by enabling target groups take advantage of new value chain opportunities. Defining leverage points that guarantee women's equitable participation in value chains and control over farm assets and income-generating activities remains both a principal research activity as well as an area for piloting institutional innovations. Finally, efforts will be made to encourage Partners to involve women, jointly with men, in their activities as scientists, project implementers and project participants.

8. Methods and Approaches for Gender Research

As a minimum, all data collected by Humidtropics researchers will be sex-disaggregated. Projects will use quantitative and qualitative approaches together with participatory and structured research methods. For example, sex-disaggregated data collected for the situation analysis of each Action Area will include baseline socio-economic information. This research requires survey instruments designed around the collection of data on farming systems and prevailing market structures. At the Action Site level this will require the engagement of all parties involved in market development, including farmers' associations, private business, local authorities and non-governmental agencies.

8.1 Diagnostic and Characterization Studies

The status of women and their role in all aspects of agriculture differs markedly across the Action Areas. For example, women are much more active as traders in West Africa than in East Africa, and their status is higher in some of the Mekong cultures than in much of Africa and Central America. There is considerable literature showing that in Africa women tend to be less involved in cash cropping; whereas in Southeast Asia, the benefits and risks of cash cropping are more equally shared (Jefremovas 2002). Because of these wide variations, Humidtropics will develop gender-sensitive databases and intervention strategies that are location and context-specific.

8.2 Comparative Case Studies

A series of comparative case studies will be undertaken within the different Flagship Projects aimed at understanding commonalities among gender norms embedded in diverse cultures, languages, customs, beliefs and values, and to identify gender norms of strategic significance for agricultural innovation that occur repeatedly across different regions, agro-ecologies and crops. The case studies will present opportunity for close cooperation with other CRPs. For example, Humidtropics is exploring collaboration with CRP 3.2 Maize, CRP 3.4 RTB and CRP 3.5 Grain Legumes, to develop methodologies and conduct case studies on productivity and labour allocations. This will eventually involve other CRPs.

8.3 Baseline Studies

Humidtropics researchers will undertake baseline studies in each Action Area to establish preliminary databases about issues such as the gender division of tasks and responsibilities around management and investments in key crop and livestock activities, and in decisions on natural resource and biodiversity integrity, access to and control over productive resources, and constraints faced by men and women in accessing improved technologies, services, inputs and markets.

8.4 Participatory Technology Identification, Development and Evaluation

As technologies are selected or developed, they will be evaluated to ensure that both existing and the new technologies under development address the gender issues identified such as divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members for example. Some potential technologies will be tested with different categories of possible users based in different sites, and based upon the identified range of household typologies and gender related rural enterprises.

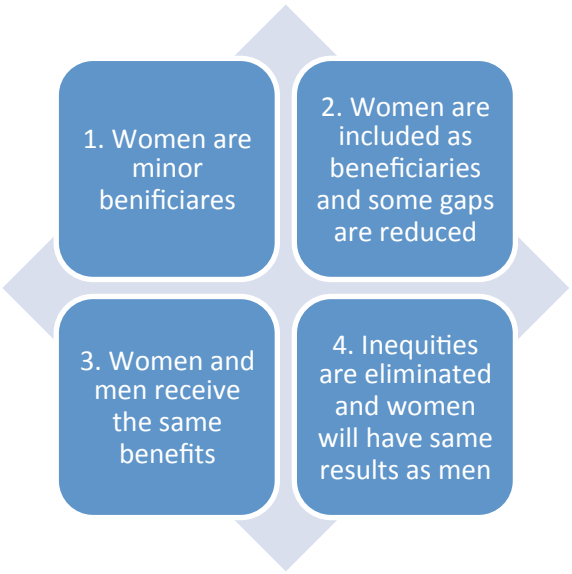
9. Beneficiaries and Targeting

Overall, in addition to focussing especially on women, Humidtropics will work with a range of vulnerable groups.

From a gender perspective, there are four potential types of benefits, focusing on women (Figure 1 on page 14):

1. Women are expected to benefit directly in their separate production activities, and indirectly as members of joint activities, i.e. benefit from increased yields and factor productivity of staple food crops, livestock and livestock products improvements;
2. Women are expected to benefit from having more income under their control due to increased participation in value chains, extension advisory services and sustainable NRM and system-based innovative labour saving technologies, and important gaps between men and women are reduced;
3. Women and men receive the same benefits, i.e. both increase staple food yields above 60 per cent but the gap between them remains constant at the pre-existing difference;
4. The inequities in staple food yields, income and assets are eliminated.

Figure 1: Reduction of Inequity and Inequalities



Each of these levels of benefits is positive, but the goal will be to achieve beyond type 1, since that level does little to change the overall situation of women. The ultimate objective will be to achieve type 4 and specific targets will be set for teams as they move forward with their research. Ultimately, Humidtropics aims to contribute to gender equity. This requires much more than ensuring that women are included among the beneficiaries. It is important to consider that gender inequities in innovation and market participation are deeply dependent on structural inequities that are also reflected in assets, including education, and their ability to use any claims they may have. The gender research outcomes may not materialize exactly as expected, especially in relation to issues of equity, access, etc., and this needs to be observed and monitored as part of research and M&E processes, to ascertain effects on overall program productivity and outcomes. The benefits implied in type 4 are consistent with the overall goal of IDO 5 - to empower poor women and men to have better control over and benefit from integrated production systems and ultimately to transform women's status and position.

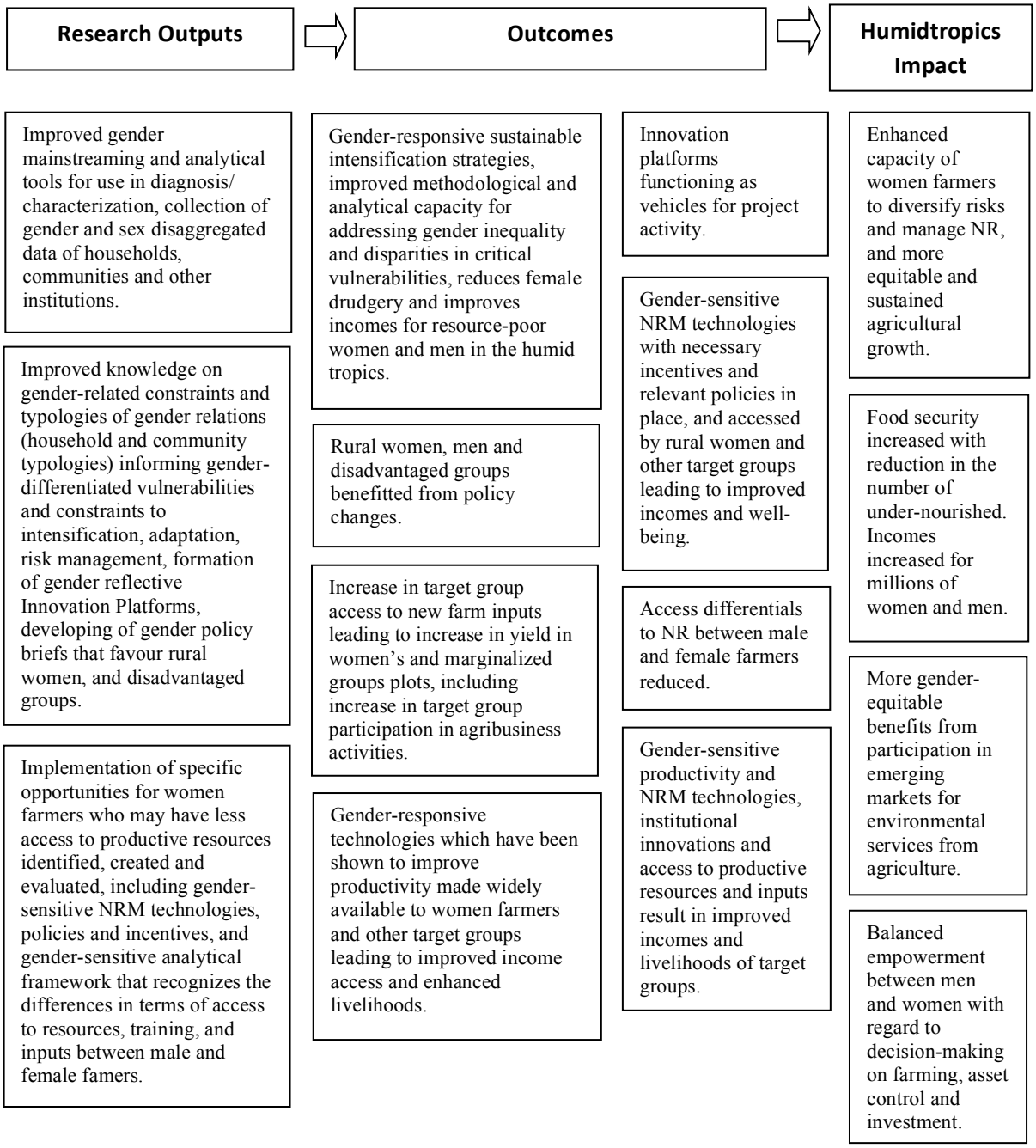
10. Impact Pathways

Strategic and integrated gender research carried out in Flagship Projects in the four Action Areas creates the knowledge base about gender needs and relations to initiate the Action Area Gender platform. The platform is used as an arena for discussion between Action Area Partners to determine entry points for gender-sensitive interventions. Knowledge is shared between the four initial Action Area Gender platforms. Interventions carried out through Flagship Projects lead to a more equitable and sustained agricultural growth, increase food security, reduction in the number of under-nourished, and more gender-equitable benefits from participation in emerging markets for environmental services from agriculture (see Figure 2 for further details on how Humidtropics plans to achieve impact).

10.1 Theory of Change

Change in rainfed, smallholder farming systems in the tropics is gradual, adaptive and stepwise. It responds primarily to changes in technology, market conditions, farmer-available resources, and increasingly to changes of climate. Humidtropics will improve understanding of these processes in terms of alternative intensification pathways and critical points of intervention and then design gender-sensitive, superior combinations of crops, livestock, fallows and trees; soil and water management practices; investment strategies for sustainable management of the natural resource base, including agrobiodiversity; and market and other institutional innovations that direct intensification toward their desired outcomes. Promising strategies will be tested and evaluated with intermediary and end users using gender-sensitive participatory action research. As technologies are selected or developed, they will be evaluated to ensure that they address the gender issues that have been identified. These may include divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members. As a result of having technologies and system intensification pathways evaluated with women and men, end-users of the Program will be able to recommend new alternatives with confidence that they will be accepted. This will speed up rates of end-user adoption and adaptation. At the same time, the participatory evaluation process with users will increase social capital and agency especially for poor women. This is expected to increase women's empowerment and their ability to take advantage of new opportunities and technologies. Evidence of this type of change will be systematized and communicated to policy makers to increase support for policy change needed for more gender equitable access to productive assets and inputs on which the success of new technologies depends. Humidtropics' gender research activities will lead to an overall improvement in the lives and livelihoods of both men and women, with women being particularly advantaged. Overall, the planned activities will lead to an improved understanding of how to intensify farming while reducing inequalities.

Figure 2: Generic Impact Pathway[2]



10.2 Activities

Currently, the participation of women farmers in agricultural research for development is relatively less than that of men. This has led to differing impacts of technologies upon women and men famers. The reason for this is that a range of socio-cultural norms and practices deeply influence the way agriculture research for development is undertaken. Gender-responsive as well as strategic gender research activities will be of critical importance and significance to the effectiveness of Humidtropics initiatives. Since women farmers form a large proportion of the smallholders, Humidtropics' strategic gender research will undertake a socio-economic and gender analysis of women and men's perceptions regarding intensification and diversification, as well investment in NRM, and their associated

[2] Adaptation of the impact pathway graphic of CCAFS (2011).

risks and rewards. The baselines and diagnostic studies serve to document whether the key technologies being developed are (or are not) benefitting women to the degree expected, particularly in terms of drudgery reduction and improved nutrition and incomes.

Agricultural tasks are gender-segregated and technology adoption is highly contextual. Understanding the dynamics of women's roles and contributions in rural households and communities in the various contexts of Humidtropics activities involves understanding gender relations and roles, and household decision-making, constraints and opportunities. These factors influence adoption behaviours in the household and the community. Greater understanding of context and increased involvement of women in the design and implementation of actions will improve impact.

Examination of the impact of the adoption of Humidtropics technologies and interventions on women, in terms of drudgery reduction, improved nutrition and income must go beyond gender disaggregation and look into more nuanced issues relating to gendered power relations, behavioral/attitudinal change, changes in the practices and processes of decision-making, dietary patterns, and changes in gender norms and relationships, especially in terms of work patterns. This will also help in understanding why the design of labor-saving technologies may not be sufficient in itself for the Humidtopics Research Program to benefit women.

10.3 Gender-Responsive Outputs

Gender outputs for Humidtropics will be dependent on the progress of different research and development activities. However, some of the gender-responsive outputs can be listed as follows:

- Gender-sensitive tools and techniques tested and validated for use in diagnosis/ characterization;
- Gendered and sex disaggregated data collected in households, communities and other institutions;
- Gender-related constraints and typologies of gender relations (household and community typologies) developed and validated with Innovation Platform Partners;
- Gender-reflective Innovation Platforms renovated/established in Action Areas and Action Sites;
- Gender policy briefs that favour rural women, and disadvantaged groups developed and proposed;
- Specific opportunities for women farmers who may have less access to productive resources identified, created and evaluated;
- Gender-sensitive NRM technologies, policies and incentives that take into account existing gender power relations, and the differential access of male and female farmers to resources and training created and evaluated at scale;
- Gender-sensitive institutional innovations designed, tested and evaluated at scale;
- A gender-sensitive analytical framework that recognizes the differences in terms of access to resources, training and inputs between male and female farmers implemented.

10.4 Gender-Responsive Outcomes

The gender-responsive outcomes of Humidtropics research will include:

- Improved methods and tools for addressing gender inequality in Humidtropics;
- Gender-responsive sustainable intensification strategies;
- Rural women, men and disadvantaged groups benefitted from policy changes;

- Increase in target group access to new farm inputs;
- Increase in yield in women's and marginalized groups plots;
- Gender-responsive technologies to improve productivity made widely available to women farmers leading to improved income access and enhanced livelihoods;
- Access differentials to NR between male and female farmers reduced;
- Gender-sensitive productivity and NRM technologies, institutional innovations and access to productive resources and inputs result in improved incomes and livelihoods of target groups;
- Balanced empowerment between men and women with regard to decision-making on farming, asset control and investment.

Table 1 below provides a generic overview of the types of research questions to be asked and the activities that will be undertaken for each of the three SRTs.

Table 1: Examples of Gender Responsive Outputs and Outcomes

SRT/Potential Research Questions	Theme Output	Gender-Responsive Output	Gender-Responsive Outcomes
SRT 1: Systems Analysis and Synthesis *Are traditional gender relations changing in response to macro-factors such as outmigration, climate change, global competition, etc.? *How do/can gender relations contribute to sustainable natural resource management? *Does more sustainable natural resource management contribute to 'good' gender outcomes?	Partnership arrangements to address integrated systems challenges that bridge Research Outputs and Developmental Outcomes, including strengthening of existing Innovation Platforms (where available) and establishment of new ones, will be formalized. Systematic approach developed for mapping of household and community typologies, and analysis of current livelihood strategies at Action Site levels. Analysis of current livelihood strategies and consideration of aspects of the broader context that would hinder or enhance success of particular innovations.	Gender-sensitive tools and techniques tested for use in diagnosis/characterization. Gendered and sex disaggregated data collected in households, communities and other institutions. Household and community typologies developed in Action Areas and Action Sites. Gender-reflective Innovation Platforms renovated/established in Action Sites. Gender-related constraints and typologies of gender relations validated with Innovation Platform Partners.	Innovation Platforms functioning as vehicles for project activity. Priorities and targets for interventions established using gender-related constraint and typology information. Suite of gender-related tools for use in the baseline and M&E process confirmed. Gender-responsive sustainable intensification strategies developed in the early stages of the Humidtropics Program.
SRT 2: Integrated Systems Improvement *Do gender relations change in various phases of system intensification? *What are the gender implications of different technologies? What is the likely gender impact?		Initial baseline studies conducted in Action Areas and Action Sites. On-going cycle of M&E studies initiated.	Confirmation or revision of priorities and targets for gender interventions on the basis of baseline studies. Revision of gender interventions on the basis of periodic M&E studies.

*What kinds of factors must be taken into account to ensure that technologies are relevant to and taken up by women? *What conditions lead to the shifting of tasks between/ among household members?			
SRT 2.1: Policies, Institutions and Markets *What are market opportunities for men and women in specific Action Sites. Who has access to different types of market opportunities?	Enabling policy environment that supports sustainable intensifications.	Gender policy briefs that favour rural women, and disadvantaged groups developed and proposed. Programs to assist men, women and disadvantaged groups benefit from access to new farm inputs, and participation in new agri-business opportunities established.	Rural women, men and disadvantaged groups benefitted from policy changes. Increase in target group access to new farm inputs. Increase in yield in women and marginalized groups plots. Increase in target group participation in agribusiness activities.
SRT 2.2: System Productivity *How do gender relations contribute to sustainable natural resource management? *How does more sustainable natural resource management contribute to 'good' gender outcomes? *What are the gender implications of different technologies? What is the likely gender impact?	A set of useful-fit component technologies for maximizing the efficiency of production factors affected by within-farm soil fertility gradients, landscape position, and farmer resource endowment with a specific focus on different household types and gender roles.	Gender-sensitive new technologies identified, developed and validated; technologies evaluated to ensure that both existing and the new technologies under development address the gender issues identified, such as divisions of labour, levels of drudgery and opportunity costs of labour that are likely to shift tasks between household members. Specific opportunities for women farmers who may have less access to productive resources participatively identified, created and evaluated.	Gender-friendly technologies, which have been shown to improve productivity, made widely available to women farmers and other target groups leading to improved income access and enhanced livelihoods.
SRT 2.3: Natural Resource Integrity *What kinds of factors must be taken into account to ensure that technologies are relevant to and taken up by women? *What conditions	Interventions combining technologies, incentives and policies that enhance productivity, reduce risks and improve ecosystem services identified and examined through participative research, piloted and validated.	Gender-sensitive NRM technologies, policies and incentives that take into account existing gender power relations and the differential access of male and female farmers to resources and training participatively created and evaluated.	Gender-sensitive NRM technologies with necessary incentives and relevant policies in place and accessed by rural women and other target groups leading to improved incomes and well-being. Access differentials to NR between male and female farmers reduced.

lead to the shifting of tasks between/ among household members?			
SRT 3: Scaling and Institutional Innovation *What types of technological innovations can help to improve equity in women's representation in decision-making and benefit sharing? *What types of institutions must be put in place to ensure that women participate in decision-making and share in benefits?	Institutional innovations to achieve gender equity and poverty outcomes designed and evaluated. Humidtropics Analytical Framework developed and tested for institutional and innovation stakeholders and for sustainable livelihoods.	Gender-sensitive productivity and NRM technologies tested and evaluated at scale. Gender-sensitive institutional innovations designed, tested and evaluated at scale. A gender-sensitive analytical framework that recognizes the differences in terms of access to resources, training and inputs between male and female farmers implemented.	Gender sensitive productivity and NRM technologies, institutional innovations and access to productive resources and inputs result in improved incomes and livelihoods of target groups.

Humidtropics gender researchers have already identified three potential areas for research. These are as follows:

1. Gender Relations and More Sustainable NRM

Work on this topic will address the questions of how gender relations contribute to sustainable NRM, and conversely, how more sustainable NRM contributes to 'good' gender outcomes. Potential activities under SRT 1 will focus on situation analysis in each of the Action Sites in the different Action Areas. Comparative case studies will be undertaken in each Action Area, and the cross-cutting Flagship will include a synthesis of market studies.

Researchers will undertake a targeted and systematic literature review, relevant to the Action Area where the work will be carried out. This will be followed by an exploration of local gender relations and their relationship to natural resource management. Based on this analysis, hypotheses will be formed and tested. SRT 2 research will examine the relationship between women's engagement in NRM and NRM outcomes, how this varies with context, what determines women's engagement in different contexts, and what tools (processes) improve women's engagement in NRM and/or NRM outcomes when they are involved. Research in SRT 3 will seek to answer questions about the link between gender relations and the suitability of NRM options, and how these vary in different contexts across the scaling domain.

2. Gender Relations and Labour Allocation at Different Stages of Intensification

The transition of agricultural systems from subsistence to commercial production in many locations has led to changing gender relations. Agriculture has become more knowledge-intensive, and access to and use of this knowledge is often mediated by gender, ethnicity, household wealth and other factors. Potential activities under SRT 1 will focus on developing an understanding of how gender relations are changing in various phases of intensification, and on examining specific changes in production systems over the past decade and their impact on gender relations, if any. Some research questions/approaches may include the compilation of sex-disaggregated labour

calendars; examinations of how men and women allocate productive and reproductive time, and their use of hired labour to meet one or the other of these demands; the identification of key labour concerns linked with retaining different crop combinations considered important/valued for meeting food security and nutritional needs of households (e.g. staples, beans, vegetables, etc., for home consumption) and crops for sale to provide income for meeting other needs.

Work under SRT 2 will also examine if there are gender implications associated with different technologies; what skills are necessary and how do these interact with gender; what are the labour requirements of candidate technologies, both at a household and community level, and what is the likely gender impact. Scaling out work under SRT 3 will study the pattern of fine scale variation in labour norms, what controls this across the scaling domain, and how do options match to variation.

3. Gender-Related Barriers to Market Access and Participation in Institutional Decision-Making

Potential activities in this area under SRT 2 will include a synthesis of studies that focus on the market opportunities for men and women in specific Action Sites; who has access to different types of market opportunities; the challenges/constraints to the market opportunities identified for men and women in each Action Site; and lessons that can be learned from experiences across the different Humidtropics Action Sites. An analysis will also be undertaken of the differential impact of existing institutional arrangements and policies on market access of men and women. Research under SRT 3 will focus on scaling out and identify equitable market access and institutional innovations that have been identified and analysed across Action Sites. This research will include the incorporation of learning about the institutional and policy environments (triggers and drivers) necessary for supporting equitable market access for men and women.

11. Types of Partnerships

Humidtropics will make extensive use of partnerships and the Program will make concerted efforts to move beyond traditional partnerships. These will vary from community-based, institutional, rural and urban, and operating at scales from individual to multi-regional. It will be especially important to find Partners with expertise and experience in gender research and gender projects. This will involve the identification of NGOs already working in the different Action Sites. In each site there are organizations that have extensive experience in working with women farmers and Humidtropics can profit from their experience and contacts.

12. Monitoring & Evaluation (M&E)

For all the Humidtropics interventions, the M&E plans will include gender-specific outcomes and targets, as well as gender-disaggregated indicators and data collection tools. The specific outcome indicators include a reduction in gender disparities in access to inputs, services and technologies, improved women's empowerment for decision-making and income management, an increase in productivity in men and women-managed farms, a reduction in the drudgery of female labour and increased income for men and women. The Humidtropics M&E system supports operational and performance monitoring as input to program management and accountability.

Table 2: Indicative Gender Strategy M&E Indicators

Process Indicators	Percentage of projects with gender-disaggregated data. Review and synthesis of methods for collecting and analyzing gender-disaggregated data. Number of research proposals that incorporate gender. Existing data sets identified and analyzed for extent of gender disaggregation. Identification of target population (men and women, other social groups, vulnerable and marginalized groups): representation of women beneficiaries in proportion to their representation in the population. Consideration of gender differences in research problem definition and prioritization. Involvement of men and women in the innovation process (participation in identification and testing of promising technologies, use of indigenous knowledge, participation in and access to inputs, technologies and services) in proportion to men's and women's role in small scale farming. Capacity needs of staff and Partners assessed to integrate gender in the R4D program. Gender mentoring program to support scientists and Partners, and number of scientists and Partners trained.
Output Indicators	Percentage of projects with M&E components and indicators. Number of papers, reports, policy briefs and other science products that are gender-sensitive and gender-focused produced and disseminated. Capacity building strategy on gender developed and implemented for program staff and Partners. Report on lessons learned and interventions for improving gender M&E. Number of gender assessment and impact studies initiated.
Outcome Indicators (Intermediate Development Outcomes)	Improved understanding of how to respond to gender differences in resources, technology adoption rates and value chain positions to create more equitable systems and structures, and sustained well-being outcomes for women, men and households. Improved capacity and skills of women and poor. Improved nutrition and health of women and children. Improved market opportunities and benefits for women from use of resources, skills and technologies.

	More opportunities for women's meaningful participation in multiple farming systems. Gender-equitable economic opportunities and outcomes, improved well-being outcomes for smallholder women, men and families. Reduced gender gaps in access to resources, knowledge, technologies, skills, social networks, services and markets. Positive change in the norms, attitudes and practices causing gender inequality, including the gender division of labour, the relative value of women's and men's paid and unpaid work, voice and decision-making at household and community levels. Proportion (35%) of women that perceive that they have better control over assets, inputs and benefits expressed compared to those that have not (based on randomized evaluation comparing intervention with non-intervention groups or compared to a baseline) after six years. Women producers enabled to "catch up" in access to markets, microfinance and control over assets (gap narrowed by 40% against the baseline). 60% increase in yield on women's plots/farms over baseline after nine years. 75% increase in food availability and nutritional security over baseline after nine years. Services and control over assets by women increased by 55% after twelve years over baseline. Incomes of women and poor vulnerable groups increased by 60%.
Impact (System Level Outcomes)	Reduced poverty. Increased food and nutrition security, and enhanced diet quality, quantity and diversity for families, particularly women and children. Increased incomes for women. Inequality gap between men and women reduced. Sustainable NRM. Change in gender relations at the household and community levels, and balanced empowerment between women and men with regard to decision-making on farming, asset control and investment (measurable with WEAI and Randomized Impact Evaluation).

13. Gender Budget

Gender budget for staffing and research in Humidtropics will come from multiple sources. In the first instance, in the framework of gender mainstreaming, each Flagship Project will

indicate a budget proportion that defines the gender dimension of the research to be done. These amounts would be directed at the accomplishment of gender-related analysis and interventions in respective Flagship Projects. Secondly, as part of the cross-cutting Flagship Project, there will be a dedicated budgetary allocation to enable core gender staffing and strategic transformative gender research to be undertaken within Humidtropics. This work will be led by a senior social scientist within the core team.

A critical minimum of 10% of the total (W1/2, W3 and Bilateral) Humidtropics Flagship Projects budget will be dedicated towards gender research and mainstreaming. The actual proportion, combining the allocations from respective area-based Flagship Projects, and the strategic allocation from the cross-cutting Flagship would be much higher than this. For example, 27% of the total 2014 Humidtropics Flagship Projects budget is dedicated or aligned to specific gender research. The table below shows the combination of estimations of the allocations given to the gender dimension in each of the activity clusters within the four area-based Flagship Projects, as well as within the cross-cutting Flagship Project.

Gender research is included as a component element of other activities, and the proportion of the budget allocated for gender research specified below is in relation to the overall Flagship Project budget.

Humidtropics Gender Budget (US$)	**2014**	**% of Flagship budget**
Central America and Caribbean Flagship Project	528,375	35%
East and Central Africa Flagship Project	2,733,385	24%
West Africa Flagship Project	1,719,241	23%
Central Mekong Flagship Project	559,924	22%
Cross-cutting Flagship Project	1,573,192	42%
TOTAL	**7,114,118**	**27%**

The following table presents the proposed investment for the period 2014-2016 in gender expertise and capacity development that will be dedicated to implementing gender analysis and/or gender-related research activities.

Gender Staffing Budget (US$)	**2014**	**2015**	**2016**	**Total**
Personnel Costs	664,436	822,337	979,238	2,467,011
Travel	1,270,378	1,265,134	1,351,900	3,887,412
Operating Expenses	2,782,733	3,036,322	3,090,448	8,909,503
Training & Workshops	665,436	695,824	701,564	2,062,824
Collaborators/ Partnership Costs	544,120	632,567	607,485	1,784,500
Capital and Other Equipment	120,988	-	15,000	135,988
Contingency (5%)	302,471	322,609	337,282	962,362
Subtotal	6,351,891	6,774,793	7,082,917	20,209,600
Institutional Overhead (12%)	762,227	812,975	849,950	2,425,152
TOTAL	**7,114,118**	**7,587,768**	**7,932,867**	**22,634,752**

The table above includes allocations to staff the following core gender research positions in 2014:

- 1 Senior Gender Research Scientist;
- 1 Post Doc Gender Research Scientist;
- 2 M.Sc. Gender Research Scientists (one per Action Area in Africa).

In 2015 and 2016, one Post Doc and one M.Sc. Gender Research Scientists will be added each year so that before the end of 2016, the core gender research team will be composed of a total of:

- 1 Senior Gender Research Scientist;
- 3 Post Doc Gender Research Scientists;
- 4 M.Sc. Gender Research Scientists (one per Action Area).

Over the next three years, Humidtropics' Partners have also committed resources to gender research as detailed in the Gender Capacity Table on page 27. These scientists will work in collaboration with the core gender research team and will provide support to specific gender research themes and/or Action Areas.

14. Management System

Humidtropics' Senior Gender Research Scientist will be responsible for leading the Gender Strategy's operationalization and implementation, under the direct supervision of Humidtropics' Executive Director.

First, Humidtropic's Independent Advisory Committee, its Lead Center and its associated Board (IITA), and its Executive Director will all take overall responsibility for ensuring that the Program's Gender Strategy is operationalized. SRT Leaders and Action Area Coordinators will be responsible for delivering Program outputs and ensuring the mainstreaming of gender in all activities. Gender focal points for each Partner will help ensure appropriate linkages, including with other CRPs.

Second, the Senior Gender Research Scientist will be a member of the Management Committee (MC) that oversees the technical implementation of Humidtropics research. The MC comprises four Action Area Coordinators, five SRT Leaders, the Executive directorate and the Senior Gender Research Scientist.

Third, the Action Area Coordinators will lead the development of Action Area and Action Site R4D projects, including gender mainstreaming research. There will be a gender focal point identified for each Action Area Flagship Project.

Finally, the Action Site team will be responsible for the R4D action of Humidtropics relating mainly to the NRM, Productivity and Market Research Themes, ensuring that production, nutrition and health, gender and poverty related outcomes are part of their work.

In summary the following conditions are set in order to implement the activities envisioned in the Gender Strategy:

1. **Gender Expertise**: a fulltime senior social scientist to lead and coordinate the gender research and support the gender mainstreaming process. This position is at a level such that it has a role in the CRP management team;
2. **Accountability**: senior and line managers' commitment to ensuring all researchers and Partners mainstream gender in their activities as appropriate;
3. **Workplans**: workplans clearly reflecting gender activities and the necessary expertise identified from within Humidtropics and its Partners;
4. **Budgets**: specific budgetary allocations for specific gender research. Where gender is included as part of other activities, the proportion of the budget to be used for gender will be specified;
5. **Institutionalized Capacity Building**: gender research capacity building plan to improve the capacity of male and female researchers and Partners in gender integration, gender analysis and gender mainstreaming.

15. Capacity for Gender Analysis and Gender Research, and Plan to Address any Deficiencies

Humidtropics already has a number of researchers with experience and interest in gender work, and it is anticipated that over the first phase of the project, this number will be increased. Humidtropics needs a strong and enabling environment for gender mainstreaming and research to ensure linkages with policy and practice, including with other CRPs. Humidtropics SRT Leaders will act as gender champions and seek commitment and support from all Partners. A virtual support group of gender researchers will be created and regular communication, knowledge sharing and capacity building will be undertaken.

Gender research capabilities within Humidtropics' Partner Centers will be enhanced and knowledge sharing expanded through collaborative activities with gender expert groups. Humidtropics will join with these groups to advocate for policy change at the national or international levels, support capacity building in R4D projects, improve gender M&E indicators, and contribute to ex-ante and ex-post outcome assessments.

Humidtropics will develop a gender guide to offer direction and recommended best practices that can be used in all the Program activities. It will also include advice on M&E indicators and organizational mechanisms that will allow women to participate in and benefit from Program activities. Understanding how women can improve control over income streams arising from systems-oriented technological innovations will be a significant component of the impact monitoring.

Finally, where necessary and appropriate, Humidtropics will organize short gender training workshops for researchers and Partners.

Gender Capacity Table

Position type	No	CG Centre or institute	Qualification or level	Discipline or field	Available in 2012	2013	2014	2015	2016
Research scientist	1	IITA (100%)	PhD	Anthropologist with gender analysis experience	1	1	1	1	1
Research scientist	1	IITA (50%)	PhD	Anthropologist with gender analysis experience	1	1	1	1	1
Research Scientist	1	ICRAF 8%	PhD	Participatory research; socio-economics		1	1	1	1
Postdoctoral fellow	1	ICRAF 17%	PhD	Participatory research; socio-economics	-	-	1	1	1
Postdoctoral fellow	1	ILRI (25%)	PhD	Sociology and Sustainable Agriculture	-	-	1	1	1
Research Scientist	1	WUR	PhD	GIS, demography	-	1	1	1	1
Flagship project gender focal points	5		PhD or Masters	Sociologist, socio-economist with gender analysis experience	-	-	Projected recruitment		
Regional research associate	3	AVDRC (4, 4, & 6%)	PhD or Masters	Social science, business studies, development	-	-	3	3	3
Gender training coordinator	1		PhD or Masters	Any	-	-	Partners or other source of gender expertise		
Gender & M&E specialist	2	CRP Partners 50%	PhD	Socio-economist with gender expertise	-	-	Partners or other source of gender expertise		
Communication expert	1	IITA			-	1	1	1	1
Value chain analyst (6 months)	2		Masters or PhD	Team of marketing specialist and gender analyst			Proposed use of consultants		

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